Parkwood Primary School Design Technology Curriculum

KS1:

- Complete a variety of creative and practical activities to develop knowledge, understanding and skills needed to engage in the process of designing of and making
- Work in a range of relevant contexts (e.g. home and school, gardens and playgrounds, the local community, industry and the wider environment)

KS2:

- Complete a variety of creative and practical activities to develop knowledge, understanding and skills needed to engage in the process of designing and making
- Work in a range of relevant contexts (e.g. the home and school, leisure, culture, enterprise, industry and the wider environment)

One DT project needs to include the entire design, make and evaluate cycle.

FS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Projects						
A range of small and large-scale products linked to other aspects of the curriculum.	**Creativity (structures):** free-standing structure (full cycle) **Technical knowledge (mechanisms):** sliding picture **Creativity (textiles):** puppets	**Technical knowledge (mechanisms):** moving animal (full cycle) **Technical knowledge (structures):** bridges **Reflection (food technology):** healthy wrap	**Creativity (mechanisms):** pneumatic toys (full cycle) **Technical knowledge/ creativity (textiles):** bookmark	**Reflection (structures):** bird hides (full cycle) **Technical knowledge (electrical systems):** torches **Technical knowledge (food technology):** sweet cornucopia	**Creativity/ technical knowledge (textiles):** stuffed toy **Technical knowledge (mechanisms):** pulleys to make a functioning well (full cycle) **Reflection (food technology):** spaghetti bolognaise	**Reflection (structures):** earthquake-proof buildings (full cycle) **Technical knowledge (electrical systems):** steady-hand game **Reflection (computing to programme):** fairground ride
Design Knowledge						
• Know what a design is • Know what a material is	**Structures:** • Know what a material is (revisit from FS) • Know what a structure is • Know what a 3D shape is • Know what free-standing means	**Mechanisms** • Know what purposeful means • Know what appealing means (revisit from Year 1) • Know what design criteria is	**Mechanisms** • Know what a pneumatic toy is • Know what an annotated sketch is • Know the meaning of the word aesthetic	**Structures** • Know what a bird hide is • Know what a cross-sectional diagram is • Know what a prototype is	**Mechanisms** • Know what an exploded diagram is (revisit from year 3) **Textiles** • Know what a pattern piece is	**Structures** • Know what CAD (Computer Aided Design) • Know why CAD is used by industry experts (architects)

	• Know what parts means • Know what functional means • Know what appealing means **Mechanisms** • Know what a sliding picture is • Know what a product is • Know what an existing product is **Textiles:** • Know what a template is	• Know what inspiration means **Structures** • Know what bridge is • Know that a bridge is an example of a free-standing structure (revisiting Yr 1) for others to use for a purpose • Know what a mock-up is				
Design Skills						
• Draw a design • Tell a partner about a design (the materials that have been used)	**Structures** • Draw and label a design • Share ideas verbally about a design • Design a product that is appealing to themselves • Design a product that is functional **Mechanisms** • Design a product using existing ideas **Textiles:** • Use a template to draw an appealing design	**Mechanisms** • Design a purposeful product • Design an appealing product for someone else • Design a product using given design criteria as a guide • Develop designs based on the feedback of others **Structures** • Use knowledge of what a bridge and construction materials to	**Mechanisms** • Use given design criteria to design an aesthetic and functional product, aimed at particular individuals that uses a pneumatic system • Following discussion, create an annotated sketch of their product, explaining how it meets given design criteria **Textiles** • Describe the aesthetic	**Structures** • Develop design criteria to design an appealing and purposeful product, aimed at particular individuals • Create a cross-sectional diagram of their product, explaining how it meets design criteria • Create a prototype to develop their ideas	**Mechanisms** • Create an exploded diagram of their product, explaining how it meets design criteria • Develop design criteria to design a purposeful, appealing and functional product **Textiles** • Create a pattern piece to develop their ideas	**Structures** • Use CAD (Tinkercad), including how the design fits the design criteria

		create a mock-up of a bridge	qualities of a chosen textile			
FS	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**
Make Knowledge						
• Name different materials • Know what join means • Know what a tool is • Know what cut means	**Structures** • Know what means to join (revisit from FS) • Know what construct means **Mechanisms** • Know what stiffer means • Know what stronger means **Textiles:** • Know that fabrics can be cut with scissors • Know that fabrics can be joined in different ways (staples, glue or pins) • Know materials are joined differently for different purposes • Know what it means to decorate	**Mechanisms** • Know that materials can be joined to make movement • Know what a split pin is • Know how to use a split pin safely **Structures** • Know that a bridge can be made using a wall structure (refer to Oak Academy)	**Mechanisms** • Know which tools can be used to shape materials (creasing, cutting, folding, curling, tearing) **Textiles** • Know how to thread a needle	**Structures** • Know what a structure is (revisit from year 1) • Know what a frame structure is • Know what cladding is	**Mechanisms** • Know how to use a saw safely • Know how to cut wood accurately • Know how to join a pulley to a structure **Textiles** • Know how to cut material accurately	**Structures** • Know that structures can be strengthened by manipulating materials and shapes
Make Skills						
• Use different materials (paper, card, cardboard, paper straws, lollipop sticks, wood, fabric, lego, duplo,	**Structures** • Select appropriate construction pieces **Mechanisms**	**Mechanisms** • Use a split pin safely to join materials (piercing) **Structures**	**Mechanisms** • Select appropriate skills to join materials • Shape materials using tearing, cutting,	**Structures** • Construct a stable frame structure • Select appropriate materials to	**Mechanisms:** • Safely use a saw • Cut with a saw accurately • Join a pulley to a structure	**Structures** • Select materials based upon their functional properties

mobilo, stickle bricks) • Use the best tool to cut a material with good accuracy (scissors, hole punch, saws, tearing) • Join materials in different ways • Inside: masking tape, sellotape, brown tape, PVA glue, Pritt stick, string, ribbon, treasury tags, wool, hammer and nails • Outside: rope, pegs, nuts and bolts	• Use tools accurately to perform practical tasks • Use a mechanism (slider) • Use materials to make parts of the design stiffer • Use materials to make parts of the design stronger **<u>Textiles:</u>** • Cut fabric neatly • Select best method of joining fabric • Select best method of joining to decorate	• Select appropriate construction materials to build a large-scale bridge	creasing, curling and folding • Use different methods for joining (glue gun, stapler, split pins) • Build a secure housing for a pneumatic system	make a stable structure • Select appropriate materials to make a free-standing structure • Select materials for their aesthetic qualities (cladding) **<u>Electrical systems</u>** • Use scientific understanding to construct a complete, series circuit, including a switch and bulb (strong link to science)	**<u>Textiles</u>** • Explain why a textile has been chosen in relation to its aesthetic qualities • Explain why a textile has been chosen in relation to its functional properties	• Measure and cut wood accurately to create a structure
FS	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**
Evaluate Knowledge						
• Know what a problem is • Know what a solution is		**<u>Mechanisms</u>** • Know what an evaluation is • Know what an existing product is (revisit from year 1)	**<u>Mechanisms</u>** • Know existing products are designed with design criteria and audience in mind	**<u>Structures:</u>** • Know the significance of design criteria in the design process	**<u>Mechanisms</u>** • Know that design technology is an ongoing process • Know that products are refined following an evaluation	**<u>Structures</u>** • Know how modern buildings are designed to be earthquake proof (Burj Khalifa) • Know that in the real world, design can impact users in a positive and negative way
Evaluate Skills						
• Talk about a problem.	**<u>Structures</u>**	**<u>Mechanisms</u>**	**<u>Mechanisms</u>**	**<u>Structures</u>**	**<u>Mechanisms</u>**	**<u>Structures</u>**

Talk about a solution • Talk about if what they have made is what they needed it to be	• Decide if product is functional • Decide if product is appealing to themselves • Decide if a product is stable	• Evaluate existing products against design criteria • Evaluate finished products against design criteria	• Evaluate existing products against design criteria (revisit from year 2) • Evaluate finished products against design criteria (revisit from year 2)	• Use existing products to generate design criteria • Evaluate existing products against their design criteria • Evaluate their ideas against their design criteria • Evaluate their prototype against design criteria	• Adapt ideas after evaluation against their design criteria before creating their final product • Evaluate their final product against their design criteria	• Adapt ideas after evaluation against their design criteria before creating their final product, taking into consideration the views of others
FS	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**
Technical Knowledge						
• Name different materials (see list above)	**Structures** • Know what stable means **Mechanisms** • Know what a mechanism is • Know what a slider is	**Mechanisms** • Know what a mechanical system is • Know what a lever is • Know how levers create movement • Know what linkages are • Know how linkages create movement • Know that some materials are stiffer than others **Structure** • Know what a wall structure is • Know how to make a structure stronger • Know how to make a	**Mechanisms** • Know what a pneumatic system is • Know how a pneumatic system works (drawing in, releasing and compressing air) **Textiles** • Know what a running stitch is • Know what an applique is • Know how to join textiles using running stitch	**Structures** • Know what strengthen means • Know what reinforce means **Electrical systems** (link to science) • Know what a switch is • Know what a series circuit is • Know what a switch does in a series circuit	**Textiles** • Know what back stitch is • Know what decorative means • Know what cross-stitch is • Know what blanket stitch is **Mechanisms** • Know what a pulley is • Know what a pulley does	**Structures** • Know how structures are strengthened, stiffened and reinforced in the context of real-life examples **Electrical systems** (link to science) • Know what a buzzer is **Computing to program** • Know what an input is • Know what an output is • Know that computers can be used

		structure more stable				to control a product
Technical Skills						
• Cut • Join	**Mechanisms** • Use understanding of sliders to create a sliding picture	**Mechanisms** • Use levers to create movement in a product • Use linkages to create movement in a product • Select stiffer materials **Structures:** • Use understanding of materials to make structures stronger and stable (revisited from Year 1)	**Mechanisms** • Assemble a pneumatic system to create the desired motion **Textiles** • Use running stitch	**Structures** • Reinforce corners to strengthen a structure **Electrical systems** (link to science) • Use knowledge of switches and circuits to design and make a functional switch	**Textiles** • Use decorative stitches to enhance the aesthetic qualities of a product (cross-stitch, blanket stitch) **Mechanisms** • Explain the purpose of using a pulley in relation to their product • Explain how a pulley works	**Structures** • Explain how structures are strengthened, stiffened and reinforced in the context of real-life examples, and how this has informed their design **Electrical systems** (link to science) • Use scientific knowledge of buzzers to create a functional game **Computing to program** • Use a device to input instructions into a product • Adapt input, through debugging, to achieve desired output
FS	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**
Cooking and Nutrition Knowledge						

		• Know that food can be grown • Know that food can come from animals • Know what a fruit is • Know what a vegetable is • Know what the difference is between a fruit and a vegetable • Know what is included in the portion plate: - Bread, cereal, pasta, potatoes - Meat, fish and alternatives - Fatty and sugary food - Milk and dairy - Fruit and vegetables • Know that our diet should mostly include fruit/vegetables and bread/cereal/pasta/potatoes • Know that our diet should include meat/fish and alternatives • Know that our diet should include meat and diary • Know that we should eat less fatty and sugary foods • Know what slice means		• Know that not all fruits and vegetables can be grown in the UK • Know that vegetables and fruit grow in certain seasons • Know that cooking instructions are known as a recipe • Know how to prepare for cooking (clean hands, clean surfaces, hair tied back and clean equipment)	• Know where meat comes from • Know that beef is from cattle • Know what reared, caught and processed means in relation to animals • Know what the eat-well plate is (taught in Year 3 science) • Know that I can adapt a recipe to make it healthier by substituting ingredients • Know what cross-contamination is • Know what diced means • Know what fry, simmer and boil means	
Cooking and Nutrition Skills						

		• Slice vegetables using the bridge or claw grip • Fold a wrap so that the filling stays inside the wrap • Apply knowledge of portion plate to design and make a healthy wrap		• Use seasonal ingredients to design and make a sweet cornucopia • Prepare themselves and workspace to cook safely • Follow instructions in a recipe	• Apply the knowledge of the portion plate to adapt a recipe • Amend a recipe to suit changes made • Use a knife to dice vegetables • Use hob and pans safely • Fry, simmer and boil safely • Apply knowledge of cross-contamination to work safely • Follow adapted step-by-step method	